

(19) World Intellectual Property  
Organization  
International Bureau



(43) International Publication Date  
3 February 2005 (03.02.2005)

PCT

(10) International Publication Number  
**WO 2005/009870 A1**

(51) International Patent Classification<sup>7</sup>: **B65D 83/14**,  
B29C 45/14, 45/16

(74) Agents: **RINGSRED, Ted K.**, et al.; Office of Intellectual  
Property Counsel, Post Office Box 33427, Saint Paul, MN  
55133-3427 (US).

(21) International Application Number:  
PCT/US2004/018804

(22) International Filing Date: 14 June 2004 (14.06.2004)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:  
0315801.1 7 July 2003 (07.07.2003) GB

(71) Applicant (for all designated States except US): **3M IN-  
NOVATIVE PROPERTIES COMPANY** [US/US]; 3M  
Center, Post Office Box 33427, Saint Paul, MN 55133-  
3427 (US).

(72) Inventor; and

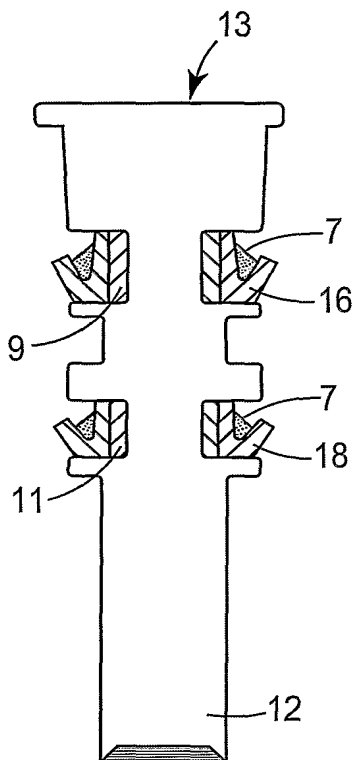
(75) Inventor/Applicant (for US only): **PURKINS, Graham  
R.**, [GB/GB]; Morley Street, Loughborough Leicestershire  
LE11 1EP (GB).

(81) Designated States (unless otherwise indicated, for every  
kind of national protection available): AE, AG, AL, AM,  
AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN,  
CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI,  
GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE,  
KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD,  
MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG,  
PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM,  
TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM,  
ZW.

(84) Designated States (unless otherwise indicated, for every  
kind of regional protection available): ARIPO (BW, GH,  
GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM,  
ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM),  
European (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI,  
FR, GB, GR, HU, IE, IT, LU, MC, NL, PL, PT, RO, SE, SI,  
SK, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ,  
GW, ML, MR, NE, SN, TD, TG).

[Continued on next page]

(54) Title: MULTI-COMPONENT VALVE STEMS



(57) Abstract: A valve stem (13) for use with a metering valve, said valve stem (13) comprising an elongate stem element (12) having an elastomeric sleeve (9) molded onto at least a portion thereof and a sealing element (16) having an inner surface (7), said sealing element (16) being affixed onto the elongate stem element (12), such that at least a portion of the inner surface (7) of the sealing element (16) is overlying at least a portion of the elastomeric sleeve (9); as well as methods of manufacturing such a valve stem.

WO 2005/009870 A1



**Published:**

- with international search report
- before the expiration of the time limit for amending the claims and to be republished in the event of receipt of amendments

*For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.*